CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter will explore the relevant literature to understand and interpret the results of the study to be carried out. This literary study is divided into four sections, where it will begin with research on INAQ, research on gifted and talented, Arabic language teaching research, and research on interesting learning. Each section will summarize the key insights and findings of each the research. The sections will not only review the literature comprehensively but is intended to make the reader adapt with the basic assumptions about problem solving in this research programme design and results interpretation.

2.2 Gifted Education

To cater to the needs of gifted and talented students, gifted education is offered, consisting of a collection of special practices, procedures, and theories used specifically for their social, emotional, and academic needs.

The main approach of this education is enrichment and acceleration. According to Wu (2013), enrichment and acceleration are very important in advanced learning and intellectual development that can differentiate attitude and needs of gifted and talented

students. Additional education enhancement programmes and related materials will ensure student progression through the curriculum at the same pace as other students.

2.2.1 History of Gifted Education

Arabic scholars have various terms for people of high ability (Almutairi et al., 2021). They also argue that these differences illustrate differences in language and terms that capture creativity, brightness, talent, or genius.

Through the Muslim age, Muslims have an interest in talented children who have skills in various fields. Among them are the fields of intuition, accuracy in observation, memory power, and argumentative. However, the field of caring for highly capable people in Islamic culture is extensive, and it is difficult to limit them to one field or concept.

Thus, the field that takes care of the talented in Islamic culture is very wide and difficult to limit them to a particular field or concept. Thus, Almutairi et al. (2021) refer that there are several gifted or talented fields that are appreciated in the Islamic and Arab worlds:

i. Language skills include being able to absorb and master various languages, possess of rich vocabularies, being able to recite and memorize the Holy Quran, as well as being able to produce effective poems.

ii. Logical abilities, including super-ability with absolute numbers, retention and arithmetic, and the high mental capacity of reasoning and solving the problems of a community.

iii. Moral capabilities, which include the capacity to master and distinguish themselves with good attributes such as humility, justice, patience, honesty, and generosity.

iv. Ability in innovative engineering includes having a high level of efficiency in handling places, spaces, directions, sizes, machines, shapes, materials, colours, and others. Creative people will not find it difficult to communicate with all these different variables.

v. Creative skills in drawing, making sculptures and decorations, producing colouring, lines, and others. Thus, talented artists can demonstrate Islamic values through their creative works that reflect their commitment to Islam.

vi. High leadership capabilities that include excellence in administrative work, so that leaders realise their objectives, find ways to achieve them and make a difference in their community.

vii. Commitment in performing worship which includes aspects of excellence in worship and adherence to religious teachings that comply with Islamic instruction.

viii. Memorizing the Holy Quran which reflects the high skill not only during memorizing about 600 pages, but also shows the high discipline to be among the 'best' Muslims. The Prophet PBUH said:

خَيْرُكُمْ مَنْ تَعَلَّمَ الْقُرْآنَ وَعَلَّمَهُ

"*The best among people (Muslims) are those who learn the Qur'an and teach it*" (Hadith narrated by Bukhari: 5027)

ix. Wisdom requires the interaction between 4 components consisting of: (1) intelligence, (2) knowledge, (3) vision, which is the ability to balance various kinds of elements in decision making and (4) firmness, which is the ability to act with certainty and make an effective decision.

Additionally, Renzulli and Reis (1985) claim that gifted and talented students "are those possessing or capable of developing this composite set of traits and applying them to any potentially valuable area of human performance" (page 28). They emphasise that such students "require a wide variety of educational opportunities and services that are not ordinarily provided through regular instructional programmes" (page 28).

Renzulli (2002) and his colleagues have looked more closely at the hound's-tooth background and have identified six components of what he calls "socially constructive giftedness". These are virtues that direct giftedness towards enhancing social capital, "a set of intangible assets that address the collective needs and problems of other individuals and our communities at large" (page 2). Renzulli calls these virtues "co-cognitive factors" because "they interact with and enhance the cognitive traits that we ordinarily associate with success in school and with the overall development of human abilities" (page 5). The six components (page 4) are:

i. optimism

ii. courage

iii. romance with a topic or discipline

iv. sensitivity to human concerns

v. physical/mental energy

vi. vision/sense of destiny.

Renzulli believes that, by developing innovative programmes to foster these virtues, schools can help create leaders who will promote social as well as material and economic gain.

2.2.1 Theory of Gifted Education

To decide whether education or curriculum is gifted education or not, it must be based on its theories. Firstly, affective curriculum is designed to teach talented students about emotions, self-esteem, and social skills (Ching, 2014). This can be valuable for all students, especially those who have been grouped with older students, or who have been rejected by the same age, but their academics are typical, and they are also peers (Ching, 2014).

Differentiation is an attempt to address the variation of learners in the classroom through multiple approaches that modify instruction and curriculum to match the individual needs of students (Renzulli, 1977; Tomlinson, 2000). Students vary in their abilities, interests, and prior knowledge. Differentiation serves to address this variation by matching the content, instruction, and assessment to students' needs and interests.

Tomlinson (1995) emphasized that when teachers differentiate curriculum, they stop acting as dispensers of knowledge and serve as organizers of learning opportunities.

Renzulli's (1977) and (1988) also stated that five dimensions of content, process, products, classroom organization and management, and the teacher's own commitment to differentiate into a learner as well as a teacher provides a method to differentiate instruction. The differentiation of content involves adding more depth to the curriculum by focusing on structures of knowledge, basic principles, functional concepts, and methods of inquiry in particular disciplines (Renzulli & Reis, 1997). Within the content area, representative topics are explored and webbed, with open-ended questions that probe into a particular field of knowledge (Renzulli, 1997).

Secondly, heterogeneous grouping is a strategy that gathers students with various kinds of abilities in a single classroom environment. Generally, this term is used for groups of students in certain grades, especially in primary schools. Sometimes, this group is claimed to provide a more effective teaching environment for less prepared students.

Johnson & Johnson (2002) recommended that for cooperative learning, it is best if heterogeneous groups with diversity in ability, ethnic background, socioeconomic status, and gender are formed to maximize learning. According to Samsudin & Rai (2006), when a heterogeneous group is formed by achievement, better ranges of improvements are seen rather than random placement of students.

Additionally, there are advantages and disadvantages from this grouping. For the advantages are the reasoning behind heterogeneous grouping is that it maximizes opportunities for peer tutoring and support, improves cross-gender and cross-ethnic relations, and ensures that each group has at least one student who can do the work (Samsudin and Rai ,2006).

Some of the benefits mentioned by Johnson & Johnson (1989) include increased social behaviours and improved self-esteem, attitudes toward school and acceptance of differences. Students tend to have higher self-efficacy about their chances of being successful.

Another advantage especially for high ability students is that through their explaining of subject material to their classmates, they will attain higher-level processing of the subject material themselves and remember it longer. This is known as cognitive rehearsal. This is also coherent with Vygotsky's theory where he conceptualized development as the transformation of socially shared activities into internalized processes (Samsudin and Rai, 2006).

However, some disadvantages pointed out in the research by Matthew (1992) include students having difficulty explaining the material to their group mates who do not want to listen to them, students who explained without bothering if their group mates understood their explanation at all and students who end up dominating a group or doing all the work themselves as they are concerned about the quality of the work. As a result, the students have negative attitude towards fellow group mates.

Some critics argue that such heterogeneous grouping holds back high-ability students. Matthews (1992) suggested that high-ability students learn humility and democratic values in homogeneous groupings. When all the members are on the same intellectual level, the students cited that it affects their self-esteem positively and they have a better understanding of their abilities when they measure up against the other members. It also adds value to the group work as each of them contributes to areas where others are lacking. However, in most studies though, it has been found that high-ability students perform equally well in tests after working with heterogeneous or homogeneous groups (Samsudin and Rai, 2006).

Another disadvantage brought up by Santrock (2004) is that when a group includes high ability, medium-ability and low-ability students, the medium-ability students might get left out to some extent; high-ability and low-ability students might form a teacher-student relationship in these groups, excluding medium-ability students from group interaction. Santrock (2004) stated that the medium-ability students might perform better in groups where most or all the students have medium abilities.

Homogeneous grouping is different with the heterogeneous grouping. Students who are academically more inclined prefer to form a group with those who are as equal or more academically inclined rather than being grouped with a student of lower ability (Samsudin and Rai, 2006). The term is used for groups of students in certain grades especially in primary schools. This group can provide more effective instructions for the most prepared students. According to Samsudin and Rai (2006), when assigning groups, the teacher needs to look at the task that would be given. If the task involves working on a specific skill, procedure, or set of facts, homogeneous groups are useful.

The teacher will then be able to address the low-ability students as a group when one of the members raised a question. The teacher will also be able then to have an idea on where the students are weak in collectively as a group and address the matter accordingly.

IEP is a written statement on educational programmes designed to meet the needs of students and developed by a team (Nugent, 2005). This statement includes a detailed description of what will be done to provide students with the necessary additional assistance. This statement will also change based on student needs.

Successful inclusion is the ability of children with disabilities to attain the outcomes or goals on their Individualized Education Program (IEP) (Cross et al., 2004). Research has shown that young children with disabilities can participate in programmes as they do in no inclusive programmes' (Holahan & Costenbader, 2000).

IEP has become the critical instrument to understand how to conduct inclusive settings for young children with disabilities in an inclusive class. Recent development of goals encourages IEPs that meet the unique needs of the child and that are meaningful and functional in the variety of contexts within which the child participates (Notari-Syverson et al., 1995). The Individualized Education Program (IEP) emphasizes that the education should meet the special needs for students with disabilities. There are several programmes focusing on how to meet the students' special needs in IEP.

Horn et al. (2000) used 3 case studies to assess the feasibility for teachers in inclusive early education programmes that support young children's learning objectives

through embedded learning opportunities, and it proved effective after conducting the study. Kohler & Strain (1996) examined the merging of naturalistic teaching and peer-based strategies to address the IEP objectives of pre-schoolers with autism and found that teachers often conducted instructional episodes in a 1:1 fashion during the naturalistic teaching phase.

Generally, enrichment and acceleration as well as all talent programmes should be designed and created as it becomes a requirement for students who are categorized as gifted and talented students. Each of the programme feature depends on their needs.

2.2.2 Gifted Education in Malaysia

Since the independence of the nation in 1957, gifted education has never been considered as one of the Malaysian educational paradigms. Nonetheless, the scenario of Malaysian gifted education has been constantly revolutionized since 2006, with an initial move set by a recommendation put forward by the Education Planning and Research Department of MOE which emphasized on the necessity to institute a special school for gifted and talented students, or at least the formation of gifted classes in the normal school system, to realize the nation's vision to become an industrialized country by the year 2020. The recommendation was later supported with the establishment of local gifted programmes in 2009 and 2010, going by the names of PERMATApintar™ and PERMATA Insan. In a recent progress, MOE has launched Malaysia Educational Development Plan 2013-2025 which outlines the nation's educational directions to be realized hopefully in the year of 2025. One of the critical directions in this plan

(launched in September 2012) is to constitute a national strategy of education for gifted students. Specifically, the ministry is hoping to formulate an effective gifted education programme to be implemented in all schools nationwide, and it should be done in three phases:

i. Phase 1 (2013-2015)—Identifying areas for improvement.

ii. Phase 2 (2016-2020)—Piloting new gifted and talented programmes.

iii. Phase 3 (2021-2025)—Scaling up success.

Following the setting up of two local "laboratory" schools for gifted and talented students namely, the PERMATApintarTM College at Universiti Kebangsaan Malaysia (in 2011) and PERMATA Insan College at Universiti Sains Islam Malaysia (in 2015), the need to establish a conceptual model for gifted school programme to support this future direction outlined by MOE has aptly become necessary. Hence, this article is going to discuss the experience of Pusat PERMATApintar™ Negara, Universiti Kebangsaan Malaysia (also known as the Malaysian National Gifted and Talented Center), in instituting its' school programme in terms of comprehensive design and evaluation strategies.

2.3 Teaching Arabic Language

2.3.1 Teaching Arabic Language to Non-Arabic Speaker

The field of teaching Arabic to non-native speakers become sustenance and great opportunities for Islam as well as Muslims to become a teacher of non-Arabic

speakers, who often admire the growing demand to learn Arabic from non-native speakers that confirm the beauty, charm, and dignity of Arabic that does not exist in other languages. Therefore, teaching Arabic to native speakers must differ from teaching Arabic to non-native speakers as it is also important in preparation for potential language teachers to receive new students who aspire to learn Arabic to give a true picture of the great civilization of the languages they hear and to the countries in which they come to see.

The position of Arabic differs from English, which is recognized as the second language, as it is considered a foreign language (Ismail et al., 2013). Foreign languages are also considered a medium for a person to gain knowledge (Nooraihan et al., 2012). Foreign language education is a form of education that uses physical activity as a unique and rich medium with a wide range of experiences needed so that speakers can participate and adapt to the development of the modern world (Suherman, 1999) and (Sakina et al., 2020).

2.3.2 Teaching Arabic Language in Malaysia

The history of the Arabic language in Malaysia began with the arrival of Islam in the region. The people of Malaya began to recognize Arabic letters and sounds in several religious practices closely related to the Arabic language. However, the Arabic language at that time had not been studied specifically because of its focus on teaching the Quran and Fardu Ain (Kim, 1980; Mohd Salleh, 1992). However, Arabic is taught indirectly through religious studies using books written in Arabic (Isaac, 1992). Official

Arabic language studies in Malaysia can be said to begin with the emergence of boarding schools in the 18th century (Jusuh, 1989). In the early stages, the study focused more on syntax and morphology as a prerequisite to the study of Islamic sciences learned afterwards (Rosni Samah, 2009).

2.3.2.1 Pondok System

Education is very important for a civilization to develop. According to Adrus et al. (2019), history shows that the Islamic educational institution, the study of huts, is a legacy or a continuation of what people have done for hundreds of years. From the 18th century to the 20th century, there were *pondok* schools in Malaya which is now called as Malaysia (Adrus et al., 2019).

This education system is the first formal education system that was first introduced in the Malay World (Mohd Roslan Mohd Nor and Wan Mohd Tarmizi Wan Othman, 2011). It was created to meet the demands of the Muslim community which requires perfect and in-depth guidance especially in matters related to faith and worship.

The word pondok is derived from the Arabic word *funudun* meaning inn or place of staying travellers (Masyhurah, 2015). In the context of Islamic education, it is associated with small houses built as student residences, near suraus or madrasahs and host teachers in a special area (Masyhurah, 2015). This is in accordance with the characteristics of this traditional Islamic school in which houses or small huts serve as residences for students (Masyhurah, 2015). These huts are built in a structured manner

close to the mosque and the homes of hut owners or teachers (Masyhurah, 2015). Masyhurah (2015) also stated that the combination of elements such as small houses, mosques, madrasahs and teacher's residence is then called pondok. The leader or teacher in the boarding school is better known as the head teacher.

Pondok School is an area where there is a traditional Islamic institution of study. There are small houses set up separately. Here Arabic has been studied in Malaysia since the year 1820. These subjects are conducted formally or informally in the pondok. According to Luqman Yusuf (2000), the study system continues to develop in several states such as Kelantan, Terengganu, Kedah, Penang, Perak and Negeri Sembilan. These institutions are known by the name of the teacher who became the founder or place/village name in which it was built such as Pondok Tok Kenali and Pondok Pasir Tumbuh in Kelantan.

According to Suhanim Abdullah (2014), the learning methods used in pondok are the same as the methods carried out in Masjidil Haram. While studying, students are required to sit cross legged in a nearly closed circle. The open part is for teachers. The teacher's place is usually covered with a cloth. After that, the teacher teaches using the technique of lectures and refers to a book. Each student will write notes on the empty space provided at the edges of the book. Usually, the teacher will read the book in Arabic and then explain it in Malay. This method is known as halaqah or general system (Awang Hadi, 1997).

Pondok teaching practice is often in a one-way form. An instructor or teacher will read the book in Arabic and explain it to the students. Notes will be written by

students throughout the process. There is no clear record of the existence of a standardized education curriculum when the cottage education system is implemented. In this system, the study of Qur'an interpretation, Fīqh, Tawhid, Hadith, Nahu, Balaghah, Qur'an, Tajwid and Tasawwuf are the subjects that taught here (Mustaffa and Mohd Asmadi, 2003).

The pondok learning institutions are unique because of the humble and low-profile boarding school setting and environment. The word pondok (literally: hut) came from the Arabic word Al-Funduq that means ―residential house, hostel, or shelter‖ and it is also defined as an accommodation for three or four students in a form of small houses (Fauzi, 2010; Zainal, 2020). Kamus Dewan (the authoritative DBP Malay dictionary) defined pondok as a madrasa (school) or hostel which is a place to learn Al-Quran recitation and religious knowledge (Abdel Rahman, 2021). This term was assimilated and became part of the Malay vocabulary that refers to the traditional learning institutions oriented to religion (Bakar, 1992). The typical pondok would consist of a row of small houses (huts) or a long house of a similar shape—the residence of the students who have come from all over the country (Ishak, 1995; Zainal, et al., 2020). Traditionally, the houses are made of wood or bamboo and erected near the home of a pious person known as ―Guru, ―Ustaz or ―Kiyai, who owns the madrasah, surau or mosque (Thukiman, 2002; Zainal, et. al. 2020). The main attraction to a certain pondok would be the Guru or Ustaz (religious teachers who received their education in Mecca, Egypt, or India). The pondok‘s size and teaching staff would also become the determining factors for parents and students in choosing the pondok to study. Popular traditional pondok institutions are normally found in Patani (Southern Thailand), Kedah or Kelantan (Zailani, et al., 2018).

The study environment and limited study space in a pondok makes it unable to accommodate the large number of students especially those who come from far away narrowly (Solahuddin Ismail, 2014). Therefore, to further expand and upgrade the Islamic education system in Malaya, Solahuddin Ismail (2014) stated that the Malay scholars and intellectuals began to think of the best methods by laying down three basic things that should exist in the education system which are:

i. Structured and formal methods of study with a more efficient system.
ii. Large spaces are used as classes for study that can accommodate the large number of students at any given time.
iii. It must have accommodation facilities especially for the comfort of students who come from near or far who want shelter.

With the integration of these three things, the formal pondok education system has been established and is well known to this day.

Arabic language education has its own uniqueness in the education system in Malaysia. Arabic was a foundation in the pondok education and religious school systems a long time ago, but now it becomes one of the subjects in the mainstream of modern education.

2.3.2.2 Maahad Muhammadi

The pondok education system also experienced its ups and downs when there appeared a school or religious madrasa which implemented a more systematic and structured Islamic study pattern according to the structure and style of the British colonialists (Solahuddin Ismail, 2014). Among them, Maahad Muhammadi is one of the oldest religious formal learning institutions in Malaysia. This educational institution has also played a big role in the history of education in Kelantan because it has successfully produced Islamic scholars who are famous in the region especially after independence in 1957. Since the establishment of science stream classes in 1996, Maahad Muhammadi Lelaki has created a new history when it successfully produced professionals with religious education backgrounds such as doctors, engineers, businessmen, lawyers, architects, lecturers, and others.

2.3.2.3 SMAASZA

Sekolah Menengah Agama (Atas) Sultan Zainal Abidin (SMAASZA) was first established at the Paya Bunga Malay School and later moved to the Bukit Jambul Malay School, Kuala Terengganu with the name "Madrasah Arabiah". The school's own building was established in Kampung Ladang, Kuala Terengganu in 1932. In 1933, on 15 Rajab 1353H, "Madrasah Al-Sultan Zainal Abidin" was officiated by HRH Sultan Sulaiman Badrul Alam Shah during the school's opening ceremony.

Changes in the school education policy were made in 1958 whereby this policy is divided into two parts: i) Ibtidai Division (lower) – study for 5 years and ii) Thanawi Division (secondary) – study for 4 years. Students who have completed standard 6 at the national school will be admitted to Ibtidai for 5 years. After graduating and obtaining the Ibtidai Certificate, they are able to continue their education to the Thanawi level for another 4 years to obtain the Thanawi Certificate. This certificate is certified equivalent to Thanawi Azhar Certificate, and the holder can continue his or her studies to the first year at Azhar University, Egypt.

A split in the school also took place in 1958 where Ibtidai studies were maintained in Kampung Ladang while the Thanawi section was moved to an old building in Kampung Batu Burok, the site of the house of the late Datuk Sri Amar Di Raja, the former Menteri Besar of Terengganu which was used as a Rest House. The school is known as Sekolah Menengah Ugama (Atas) Sultan Zainal Abidin, Batu Buruk.

2.3.2.4 Ulul Albab

The existing education system was strengthened by highlighting the UA programme at Imtiaz Secondary School, Terengganu after the 5th Prime Minister of Malaysia welcomed the idea. Ulul Albab is a term from Quran and it is mentioned 16 times in 10 specific surahs as in (1) Al-Baqarah [2]: 179, 197, 269; (2) Ali ‗Imrân [3]: 7, 90; (3) Al-Mâidah [5]: 100; (4) Yusuf [12]: 111; (5) Al-Ra'd [13]: 19; (6) Ibrâhîm [14]: 52; (7) Shâd [38]: 29, 43; (8) Al-Zumar [39]: 9, 18, 21; (9) Al-Mukmin [40]: 54 and (10) Al-Thalâq [65]: 10. (Arief Efendi, 2014).This term is one of the efforts in

transforming two fields of knowledge namely worldly knowledge (science) and ukhrawi (religion) knowledge in the Malaysian education system.

This programme aims to produce professionals, technocrats and entrepreneurs who are not only knowledgeable but have religious skills based on the Quran and al-Sunnah as the Ulul Albab generation. The meaning of Ulul Albab has different definitions, among which are:

> *"Ulul Albab or the people of perfect intellect, as mentioned in the Quran is a person with the power of mind, who mastered philosophy, science and technology*" Dato' Seri Ahmad Badawi

> *"A group that has a solid foundation in the Qur'an, knowledge that is wide and diverse, able to think and observe the creation of God through the eyes of a heart and a sharp intellect and take a lesson from it."* - Dato' Seri Idris bin Jusoh.

Ulul Albab is a group that has a strong foundation on the Quran, knowledge that is wide and diverse, able to think and observe the creation of Allah through the eyes of the heart and the sharp mind and take the knowledge from it.

The humble beginnings started in 1996 in Imtiaz School Besut, Terengganu initiated by a team of experts in various educational fields led by Datuk Sri Idris bin Jusoh to prepare a new educational plan that could build the dream Ulul Albab generation. The plan was contained in the three basic elements: Quranic, Encyclopedic

and Ijtihadic plan (QEI). The quiet success of the first Imtiaz school triggered further expansion of the programme that included four new Imtiaz schools. The schools managed to achieve various great successes academically and in co-curricular activities. Using the newly implemented approach, they had managed to achieve first place in the PMR and SPM national examinations at the state and national levels. Selected MRSM schools using the QEI module also proved to be a success which gave good impression about this educational system (Zikri, 2019).

Furthermore, the Quran is the main guidance in the principles of producing the Ulul Albab generation (Arshad, 2015). The three characteristics that should be instilled in the students can be divided into three groups, namely Qur'anic, Ijtihadic and Encyclopaedic. The main elements of the knowledge based on QEI are as follows:

i. Quranic: the ability of students to memorize 30 verses of the Quran, understand it based on the concept of reading, remembering, understanding, thinking, charity and gradually making the Quran part of the culture of everyday life (Haron et. al. 2019).
ii. Encyclopaedic: the ability to become experts in various fields of knowledge and language (Mardhiah Yahaya, 2017).
iii. Ijtihadic: the ability to provide insight, create solutions to the problems of the ummah, innovate by maximizing the wisdom of mind and intellect that Allah SWT has given creatively and innovatively. (Mardhiah and Aslam Farah, 2018). The concept of ijtihad is also in line with one of the aspirations of the students set out in the 2015-2025 educational development plan which is thinking skills.

2.3.2.5 Kolej GENIUS Insan (KGI)

Kolej GENIUS Insan places emphasis on the four skills of Arabic language mastery which are listening, speaking, reading, and writing to enable a person to communicate using Arabic in different situations. It is the basis of the philosophy of Arabic teaching in Malaysia which is used in Arabic language teaching in the Kolej GENIUS Insan.

KGI is also one of the selected secondary schools established according to the school in campus concept for gifted and talented students. The students are educated based on this curriculum.

2.4 Integration of Naqli and Aqli (INAQ)

2.4.1 The History of INAQ

Universiti Sains Islam Malaysia (USIM) is the 12th Public Higher Education Institution in Malaysia. By taking a balanced approach between mental, physical, and spiritual aspects, USIM emphasizes a comprehensive educational perspective towards the consolidation of Naqli (wahyu) and Aqli (rational) knowledge in line with the university's philosophy, mission, and vision. The offering of this unique education model sets USIM apart from other universities around the world.

The concept of the combination of this two knowledge generally gets various terms such as the integration of knowledge *fardu ain* and *fardu kifayah* knowledge, islamization and compatibility of knowledge.

The definition of The Integration of Naqli and Aqli sciences is as follows:

i. Integration: According to Kamus Dewan Edition 4, the meaning of 'integration' is the harmonization process (Dewan Bahasa dan Perpustakaan, 2005). In the context of the integration of Naqli and Aqli sciences, it is the process of harmony, combination, and callosity between the two sciences.

ii. Knowledge: The meaning of knowledge according to the Kamus Dewan Edition 4, is knowledge in the things of the world, the hereafter, the intangible, the inner, etc. Based on this meaning, science and knowledge are the same (Dewan Bahasa dan Perpustakaan, 2005).

iii. Naqli Knowledge: Naqli knowledge is knowledge sourced from the Quran and as-Sunnah such as faith, tafsir and hadith (Mahyuddin et. al. 2018).

iv. Aqli knowledge: Aqli knowledge is knowledge sourced from human mind such as philosophy, management, physics, chemistry, and engineering (Mahyuddin et. al. 2018).

In summary, knowledge in the West is understood as a commodity, trading merchandise, and weapons of the third world community or developing country (Wan Mohd Fazrul, 2018). In comparison to the rational, knowledge in the East has a tradition of celebrating the intuitive. For example, the Upanishads speak of higher and lower knowledge, and lower knowledge is associated with various sciences. Furthermore, the

classic pair of yin and yang has been used in Chinese philosophy to represent the complementary nature of the intuitive and rational. In fact, science has been formed in accordance with the philosophical framework of humanism, secularism, and materialism as in the Western view of nature. Science is not God's teaching. The claim of knowledge as God's teachings is the myth and fantasy belief of the Prophets who tried to create utopia as opium for society (Wan Mohd Fazrul, 2018). The best example to illustrate the concept of knowledge in western nature can be referred to in Bertrand Russell (1872-1970), where he revealed the following:

In the world of science, all of this is different. It is not through prayer and decency that people can live on their life, only gaining knowledge of natural law. The power people gain is greater and more reliable than the prayer method because people cannot tell whether their prayer will be fulfilled or otherwise in heaven. Moreover, the power of prayer has limits; it is not considered good if one asks too much. But the power of science is infinite. We have been told that faith can move mountains, but no one believes it; we are now told that an atomic bomb can move mountains, and everyone believes it (Russell, 1992:15).

Under the section titled: Various Kinds of Knowledge Found in the Current Civilization, in the sixth chapter of Muqaddimah, Ibn Khaldun described the definition of naqli knowledge and aqli knowledge (Wan Mohd Fazrul, 2018). In terms of language, Naqli is derived from the word naql which means move, carry, reach, give, pronounce and report (Wan Mohd Fazrul, 2018). While Aqli, in terms of language, comes from the word aql which means intellect, mind, intellect, and understanding.

In this context, Ibn Khaldun defines the terms used for these two words based on the original source of knowledge. First, there is a type of knowledge that is sourced from the divine, revelations or sharia. “All of that depends on information based on the power of certain Sharia law. In it there is no place for intellect, except when the intellect is used in relation to the question attached to the detail of the basic principles” (Wan Mohd Fazrul, 2018).

Secondly, Wan Mohd Fazrul (2018) also added that there is knowledge that originates from the thinking or intellect of human beings. "It is something that can be habited by man through his natural ability to think and to resolve problems, submissions, and methods of teaching that are aided by his human impressionability, so that he can differentiate between the truth and falsity through his speculation and research, in addition to being a reasonable being".

Furthermore, USIM raised this as the main agenda of the university through the philosophy and vision of the university which is as follows (Wan Mohd Fazrul, 2018):

i. University philosophy: the combination of Naqli and Aqli and noble ethics is the main core of forming a brilliant generation and a scientific society.
ii. University's vision: to integrate Naqli and Aqli sciences to transform and generate value to the country, ummah and human beings.

This integration is based on two things. The first is the bondage of Allah SWT which means that man must live according to His commandments and wills. Human beings are allowed to choose but the choice should be in line with the will of Allah

SWT. If a man chooses what Allah SWT commands, then he is a devout and godly servant. The second is that the caliph on the face of the earth means that people need to be leaders of themselves and others to lead to the prosperity of this universe and obedience to the command of Allah SWT which leads to the destruction of civilizations that Allah SWT cares about. Among the objectives of INAQ are:

i. To see the sign of The Majesty of Allah SWT so that humans can see the majesty and greatness of Allah SWT through research and experiments on the uniqueness and precision found in His creation. Allah SWT states:

﴿سَنُرِيْهِمْ اٰيٰتِنَا فِى الْاٰفَاقِ وَفِيْٓ اَنْفُسِهِمْ حَتّٰى يَتَبَيَّنَ لَهُمْ اَنَّهُ الْحَقُّ ۗ اَوَلَمْ يَكْفِ بِرَبِّكَ اَنَّهٗ عَلٰى كُلِّ شَيْءٍ شَهِيْدٌ ﴾

"We will show them Our signs in the horizons and within themselves until it becomes clear to them that it is the truth. But is it not sufficient concerning their Lord that He is, over all things, a Witness?" (Al-Quran. Fussilat 25: 53).

ii. Facing the challenge of secularization and separation of knowledge where the teachings of Islam see all knowledge from Allah SWT that should be used to achieve His pleasure without distinguishing between religious knowledge or science. Naqli knowledge from the Qur'an and hadith to know Allah SWT through His revelations, while Aqli or science is to know Allah SWT through His creations. There are many verses of the Qur'an that call for research and observation on nature to see the power of Allah SWT.

iii. To be the framework of knowledge to restore the greatness of Islamic civilization. Among the great factors of Islamic civilization is the ability of

Islamic scholars in the first five hijra centuries to integrate the knowledge from diverse civilizations into the framework of Islamic knowledge built based on the guidance of the Holy Quran and al-Sunnah. They also cooperate with scholars from various religions. As a result, they managed to use knowledge such as physics, medicine, and astronomy from sources outside the Islamic world to lead Islamic civilization towards the humane, creatures and the whole world.

iv. Managing Muslim Dissensions. Among the factors that prevent the revival of Muslims as the leader of human civilization is the internal division of Muslims. It happens because of the failure of Muslims to manage the differences of views that arise among them. As a result, they are so easily disobedient even on matters of small branches (furuks) that can deny and even spilling blood among religion relatives. The concept of knowledge integration will be seen to help Muslims to manage differences of opinion among themselves.

2.4.2 INAQ in Workplace (USIM)

In addition, the culture of INAQ is not only in the teaching and learning aspects, but it is also applied in the workplace. USIM wants to develop and empower administrative staff who have knowledge, values, principles, and skills that are relevant and innovative. It aims to produce human capital that can attract and retain talents of a global, multilingual, and balanced nature as with the purpose of establishing INAQ ideas.

Therefore, to realize this agenda, USIM acts to cultivate governance practices that are based on the Integration of Naqli and Aqli Knowledge.

2.4.3 INAQ in Education

The main themes of philosophy of Islamic education, integrated curriculum design teaching and learning based on 'adeb', research and academic leadership divided into 4 domains. Allah SWT states in the Holy Quran:

اِنَّمَا يَعْمُرُ مَسٰجِدَ اللّٰهِ مَنْ اٰمَنَ بِاللّٰهِ وَالْيَوْمِ الْاٰخِرِ وَاَقَامَ الصَّلٰوةَ وَاٰتَى الزَّكٰوةَ وَلَمْ يَخْشَ اِلَّا اللّٰهَ فَعَسٰٓى اُولٰۤىِٕكَ اَنْ يَّكُوْنُوْا مِنَ الْمُهْتَدِيْنَ ﴿١٨﴾

"*The mosques of Allah are only to be maintained by those who believe in Allah and the Last Day and establish prayer and give zakah and do not fear except Allah, for it is expected that those will be of the [rightly] guided.*" (Al-Quran. al-Taubah 9:18)

INAQ is seen as an effort to obey the commandments of Allah SWT in the Qur'an and al-Sunnah based on the concept of continuity from the Islamic scholars' approach in developing Islamic civilization. This innate nature view is based on the Tawhid and the unity of knowledge is an important foundation of INAQ. USIM staff with understanding and implementation of the INAQ concept have the potential to present a formula for solutions to the current problems of Muslims.

2.5 Meaningful Learning

This research uses an approach by adopting David Ausubel's meaningful learning theory. "What the learner already knows" is the "most important single factor influencing learning," as stated by Ausubel (Vallori, 2014). According to Mystakidis (2021), meaningful learning construction is linked to teaching methods like inquiry and problem solving. This lets students find and analyse the underlying structure and link old and new ideas.Therefore, meaningful learning occurs in humans when they relate new concepts to pre-existing familiar concepts. Vallori (2014) also added that meaningful learning implies longer retention than simply memorising information. Then, new connections are formed, old ideas are revised, and even the fundamental architecture of our minds undergoes change. This strategy is efficient due to the fact that it fosters true comprehension, produces memories that are retained for a longer period of time, and makes it simpler to apply acquired information to unfamiliar situations (Vallori, 2014).

Nurul Farhana et. al., (2019) stated that useful knowledge and the creation of new knowledge are essential to learning is meaningful. Human constructivism is founded on learning that has value (Nurul Farhana et. al., 2019). Significant in fostering meaningful learning experiences among students is the combination of meaningful content, course instructors, and peers. As stated by Reiter (2015), Meaningful Learning assumes a holistic approach to students, requiring their cognitive, emotional, and behavioral focus. It is also holistic in the sense that it considers the ecological status of learners, their family ties, the neighborhood in which they reside, their formal milieu

(school, social club, workplace, etc.), as well as their ethnic and national backgrounds (Reiter, 2015).

Meaningful learning environments connect learning to what students are interested in and what they need, and they show students the value of learning outside of school (Polman et. al. 2021). According to Safdar et. al. (2012), Ausubel's theory is comprised of three principles: (1) Concepts are only meaningful when the student can visualize them (i.e., when they evoke a mental image) and incorporate them into a cognitive structure. (2) Proceed from the most general to the most specific concepts. (3) Students' readiness, which includes their current knowledge, cognitive development stage, and dominant intellectual functioning style.

Safdar also added that students can learn about their knowledge structure and the process of knowledge construction with the aid of concept maps. Thus, concept maps assist students in learning how to learn (meta-learning). He added concept mapping requires operation at all six levels of Bloom's educational objectives for the cognitive domain: knowledge, comprehension, application, analysis, evaluation, and creation (synthesis).

Below are outlined by Vallori (2014), the fundamental tenets of meaningful learning:

1. Open work allows all students to learn.
2. Motivation improves the classroom environment and makes students interested in their assignments.

3. The means must be relevant to the learners' environment.
4. Creativity enhances intelligence and imagination.
5. Concept mapping assists students in linking and connecting concepts.
6. Curriculum must be modified to accommodate students with special needs.

Concept maps can be used for (1) knowledge construction—how students construct their understanding; (2) education (3) evaluation (to evaluate how students organize their knowledge); (4) evaluation: used as a pre-post evaluation of what students have learned. (5) documentation of comprehension; (6) problem-solving; (7) application; (8) integration; and (9) instruction (Safdar et. al, 2012). Using concept maps and a variety of teaching aids opens up new fields of work from a constructivist perspective (Vallori, 2014).

There are benefits associated with concept mapping and meaningful classroom learning which are listed below (Vallori, 2014):

1. Presentation is more lucid.
2. Outstanding information is included.
3. Students are aware of what they must learn in a connected and organised manner.
4. Academic performance improves.
5. It assists teachers in understanding what they must teach.
6. It enables teamwork and collaborative work to share meanings.
7. Information appears hierarchically organised and coherent.

8. Concepts are interconnected.
9. It offers meaningful education.
10. Teachers are not overburdened with work because they do not teach irrelevant concepts. There is no need to repeat or retake tests or exams.
11. The standard of education rises.
12. Teachers have higher self-confidence as they check out their good results.
13. Learners are aware of their learning and this motivates them to learn even more.
14. Classroom environment becomes more relaxed.
15. Students learn how to learn and are able to apply their own knowledge.
16. Learners are actively involved in classroom tasks.
17. Few disciplinary issues arise because their occurrence has been anticipated.

2.6 Interactive Learning

2.6.1 Definition of Education Technology

Educational technology is a systematic and organized process of applying modern technology to improve the process of conceptualizing the execution and evaluation of the educational process quality (Stošić, Lazar, 2015). Educational Technology is concerned with the development, application, and evaluation of systems, techniques, and aids to improve the process of human learning (Stošić, Lazar, 2015). Technology will make the teaching and learning process more interesting and effective in the classroom. The role of technology, in a traditional school setting, is to facilitate, through increased efficiency and effectiveness, the education of knowledge and skills.

Educational technology has three domains of use which are, the role of technology as a tutor, teaching and learning tool (Stošić, 2015).

The online learning system has been used since several years ago and has become a common medium for conducting teaching and learning process in universities (Wan Ab Aziz et al., 2018). In this regard, the emergence of new technologies in the education system has surpassed beyond web-based learning as Learning Management system, Online learning, Augmented Reality are gradually replacing the conventional teaching approach. The use of technology is becoming one of the most important tools for the delivery content of teaching and learning is growing rapidly worldwide. E-learning makes the learning process much easier and flexible, and at the same time, it is more feasible for universities to cater for all groups of students (Wan Ab Aziz et al., 2018).

Meanwhile, Language is a medium between mind and learning as ineffective language distorts ideas (Wan Ab Aziz et al., 2018). Hence, learning a foreign language like Arabic requires a strategy that can boost the teaching and learning process. The processes in teaching and learning Arabic need to be more integrated and more interactive and e-learning is an effective strategy that can be employed to learn languages.

The development of digital technology has driven educators to embrace technology in the classroom, as part of the Education 4.0 movement. As a result, the integration of technology and ICT in learning has become a new trend among educators (Hashim et. al, 2018). One of the approaches taken by educators is through blended

learning. There are various definitions for blended learning. One of the most widely used definition of blended learning describes that it is the combination of face-to-face learning and e-Learning (Vaghela, 2019). Minh et. al. (2019) further explained that blended learning is the use of different media and technologies to complement each other for learning.

Blended learning is based on the idea that learning is not a one-time thing, but rather a process that goes on all the time which shows a lot of advantages over using just one way to teach or learn (RAO, 2019). In certain institutions, blending learning has cut down the need for classrooms, laboratories, and complex teaching aids. Blended learning also introduces new approaches to allow learners learning to take place in line with the course' or programmes' objectives online (Norasyikin & Mohd Isa, 2016).

The use of technology in the delivery of lessons has become gradually more common and the use of technology in supporting learning has garnered the interest of many researchers. Studies found that the integration of technology makes the learning process much easier, more flexible, and more comprehensive to cater for different learners' need. Studies also reported that the integration of new technologies into the teaching and learning process have gone beyond web-based learning and educators have started to use augmented reality, learning management system, and gamification as part of their lessons (Wan Ab Aziz et. al, 2018). In the context of second language learning, the use of technology, such as e-learning, can make language lessons more interactive and more engaging. It was further noted that Arabic language educators has started to integrate technologies into the teaching and learning through various ways including blended learning. One notable study is by Hashim et al. (2016) who examined the

integration of technologies into the teaching of Arabic and found that this practice could potentially help students to acquire Arabic language skills faster.

2.6.1.1 Computer Assisted Language Learning (CALL)

CALL (Computer Assisted Language Learning) is a somewhat restrictive definition of a method of language teaching and learning in which a computer is utilised to assist in the presentation, reinforcement, and assessment of content to be learnt, with a significant interactive component (Graham Davies, 2016). CALL is a way to teach and learn languages with the help of computer and Internet resources, such as software on CD-ROMs, DVDs, or websites that can be used on its own (Chaudary, 2019).

Furthermore, CALL materials aim to put aspects of learning theories into practise using computers and software programmes, involving students learning a language with more authentic materials (Derakhshan et, al., 2015). The use of games in learning procedures is one example of how learners can be encouraged.

Darkhsan et. al. (2015) also stated that CALL refers to the use of computers in the language learning process. In the trend of language learning, CALL programmes can teach a variety of materials, including grammar, speaking and pronunciation, writing, and any other required skills. It can also provide feedback, which is a fundamental element of any pedagogical practise (Derakhshan et, al., 2015).

Solihat (2018) explained that the computer's function in CALL has evolved from "input – control – feedback" to communication, text, audio, and video management. CALL can provides the language teacher and learner with a variety of activities that, when carefully planned as part of the pedagogical room, will assist the learner in learning a language (Solihat, 2018). Grammar, speaking and pronunciation, writing, and any other essential skills can all be taught through CALL systems as part of the growing trend of language learning (Derakhshan et. al, 2015). It can also provide feedback, which is an important aspect of any pedagogical approach.

Repetition is crucial and an integral aspect of the learning process for all subjects, including science, language, and others (Chaudary and Devi, 2019). However, repetition can be tiresome and tedious for both the learner and the instructor. Chaudary and Devi (2019) listed out how CALL can assist in resolving this issue:

1. Repetition is the key to mastering any subject.
2. A computer is effective at conducting repeated drills since it is a machine and does not weary of delivering the same content repeatedly. It does not evaluate the pupil and is objective.
3. A computer is capable of providing individualised educational content. Therefore, pupils can learn at their own paces.

2.6.1.2 Mobile Learning

The term mobile learning, or M-Learning, refers to the use of mobile and handheld IT devices in training, learning, and teaching, such as mobile telephones, laptops, PDAs, and tablet PC technologies (Sarrab et. al., 2012). Bachore (2015) defines that the use of mobile technologies in language learning, particularly in situations where device portability provides distinct advantages. It is possible that learning via mobile phone or m-learning allows learners to learn while on the bus, outside, or at work doing their part-time jobs. In fact, they can learn at any time and from any location (Bachore, 2015).

Furthermore, the main features of mobile learning are accessibility, immediacy, interactivity and situating of instructional activities (Bachore, 2015). Merbratu defines that the extent to which each learner owes the mobile is referred to as accessibility. Nowadays, almost all students, regardless of where they live, have access to technology. Furthermore, because technology is available in most places, with the exception of remote areas, learners can be connected and their opportunity to learn immediately extended.

Mobile learning technology is more useful for doing activities outside the classroom by enabling direct learning connected with the real-world experiments (Miangah and Nezarat, 2012). Moreover, learning through mobile phones outside the classroom has the advantage of better exploiting the learner's free time even the students on the move can improve their learning skills.

Miangah and Nezarat (2012) state the following properties of mobile devices: 1) portability: due to their modest size and weight, such devices can be taken to various locations. 2) Social interactivity: mobile devices enable data exchange and collaboration with other learners. 3) Context sensitivity: data on mobile devices can be gathered and reacted to the present location and time in a unique way. 4) Connectivity: By building a shared network, mobile devices can be connected to other devices, data gathering devices, or a common network. 5) Individuality: The activities platform can be tailored to the needs of each learner.

a) SMS-Based Learning

Technology-based learning in general, and SMS-based learning in particular, provides a learning environment that is defined by the learner's flexibility (Kaatz, 2013). Additionally, Kaatz (2013) stated that this learning technology provides advanced text capabilities that help to improve the learning process.

b) Game-Based Learning

Game-based learning allows librarians to include active learning into their classrooms, increase student interest and engagement, and provide rapid feedback on performance (Pho and Dinscore, 2015). Anne outlines some of the learning principles that games employ, such as the ability to experience the world through new roles and identities, as well as the potential to encourage reflective practise by requiring players to go through a cycle of probing, hypothesising, probing again, and rethinking their

strategies because each player's game experience is unique and reliant on their actions and decisions, gamers are free to develop their own personalities.

Anne also discusses some of the learning principles that games employ, such as the ability to experience the world through new roles and identities, as well as the potential to encourage reflective practise by requiring players to go through a cycle of probing, hypothesising, proving, and rethinking their strategies because each player's game experience is unique and reliant on their actions and decisions, gamers are able to become content producers rather than just consumers. “Good video games combine good learning concepts, ones validated by current cognitive science research,” Anne says (Pho and Dinscore, 2015).

Significantly, games allow students to explore, take risks, and learn from failure without fear of negative consequences in real life (Pho and Dinscore, 2015). Games also allow players to gradually improve their skills via practise and encourage them to push themselves without feeling overwhelmed by the duties (Pho and Dinscore, 2015). These characteristics can be used by librarian educators to create more interesting learning experiences by adding game-based learning in the in-person and online classroom (Pho and Dinscore, 2015).

Finally, games provide a one-of-a-kind opportunity to evaluate student learning. Students' higher-order thinking skills, such as critical thinking and problem solving, can be assessed by watching them play games and looking at performance statistics, a method known as "stealth assessment" (Pho and Dinscore, 2015).

2.6.1.3 Mobile Assisted Language Learning (MALL)

Mobile Assisted Language Learning (MALL) can enhance the teaching and learning of second languages by bringing them into the real world (Leow et. al., 2014). The idea of mobile language learning penetrated through people for its mobility access to information and knowledge across time and space. The main reason of increasing applications of MALL are recognition as useful minicomputers that fit in a student's pocket, and that are portable technological devices which are almost always switched on (Soleimani et. al., 2013).

MALL deals with the use of mobile technology in language learning. Students do not always have to study a second language in a classroom. They may have the opportunity to learn it using mobile devices when they desire and wherever they are. As learning English is considered a main factor for professional success and a criterion for being educated in many communities, providing a more convenient environment for people to learn English is one of the strategic educational goals towards improving the students' achievement and supporting differentiation of learning needs.

There are many research and developments towards the use of wireless technology for different aspects of language learning. The previous paragraphs tried to demonstrate the benefits of using mobile phones in learning English as a second language. Areas of mobile-based language learning are diverse among which the most common ones are vocabulary, listening, grammar, phonetics, reading comprehension, and others.

2.6.1.4 Blended Learning

Blended learning is the idea of setting up a learning process that includes both face-to-face teaching and teaching with the help of technology (Dangwal and Lalima, 2017). Bryan and Volchenkova (2016) stated that blended learning also can be known as "the effective combination of different ways of presenting, teaching, and learning".

There are many previous studies that reported the benefits of blended learning in improving student performance, specifically in second language learning. According to Saad et. al. (2015), stated that there was a study that examine the use of blended learning in the classroom and found that most students prefer learning through this approach. The study found that students find blended leaning sessions as more interesting and engaging as teachers use multi-sensory elements such as graphics, audio- visual files and multimedia to deliver the lesson contents. Kaur (2014) reported that blended learning could help implement change and improve lesson delivery. Khairon Nisak et. al (2015) found that blended learning sessions could increase students' self- esteem as students are given more opportunity to be active participants of the teaching and learning process.

Blended learning gives students a chance to work together on projects with both their peers and their teachers (Jones, 2019). Furthermore, the integration of technology through blended learning provides students with more opportunity to practice their language skills outside of the classroom. This is supported by Hashim et. al., (2018) who mentioned that blended learning allows students to converse and communicate with their peers in Arabic online, providing them with a meaningful way to practice

their language skills outside of the classroom. Similarly, Norasyikin (2018), in a study involving Arabic learners in Arabic learning at Unisza, reported that blended learning can increase students' motivation to learn Arabic and consequently, they demonstrate higher achievement.

Furthermore, Hashim et. al. (2012) advocated the use of digital technology as a social networking tool to enhance students' confidence and motivation in learning and using a second/foreign language. Norliza et. al. (2013) conducted a comparison between lessons that use the blended learning approach and conventional lessons and found students have higher motivation to participate in blended learning activities. In the meantime, Yunus et al. (2013) argued that students' engagement is very important at any levels of study and researchers like Nik Rahimi (2013) and Amalina et al. (2018) have demonstrated that blended learning facilitates a more interactive learning environment which could engage students in learning and stimulate their thinking more effectively. Sabri Sahrir et al. (2016) also found that learners found blended learning lessons more enjoyable as these lessons provided them with extra learning support, and self- learning options. This will ensure the learning process is not only efficient but also engaging and enjoyable to the Arabic learners. Thus, it could be posited that blended learning is very beneficial for teachers and students as it could fulfil the current demands and needs of the education system at present.

Regarding the teaching and learning of additional languages like Arabic in Malaysia, several studies have showed that students demonstrated a weak grasp of foreign languages and have little motivation to learn the language (Nur Amalina Faisal et al., 2018). This could be due to the students' anxiety of making mistakes and that the

language is taught in the traditional way that does not gauge students' interest and motivation to learn the language.

2.6.1.5 Flipped Classroom

The flipped classroom is known by various names including the inverted classroom, and more simply, the flip (Arnold and Garza, 2014). Flipped Learning is a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter (Flip Learning Network, 2014).

The concept of hybrid, or blended learning, and problem-based learning, which uses active learning approaches and new technologies to engage students, gave birth to the flip (Arnold-Garza, 2014). The flipped classroom has two defining components. The first is moving the lecture outside of the classroom, usually delivered through some electronic means, and second, moving the practical application assignments, formerly homework, into the classroom (Arnold-Garza, 2014).

In a flipped classroom, "students gain first exposure to new material outside of class, usually via reading or lecture videos, and then use class time to do the harder work of assimilating that knowledge, perhaps through problem-solving, discussion, or debates" (Drake et. al. 2016).

Subramaniam and Muniandy (2016) pointed out the most effective Flipped Classroom strategy possesses three features which are:

1. In-class learning environments are highly regimented, necessitating minute-by-minute lesson planning in order to maintain student engagement.
2. The in-class activities must be organised so that students are able to solve problems, respond to quizzes, apply or retrieve the information they learned in the flip film.
3. Through grading, in-class activities, and educator expectations, students are strongly encouraged to complete out-of-class work and attend in-person sessions.

Akçayır and Akçayır (2018) stated the advantages of flipped classroom in terms of student learning outcomes are satisfaction, engagement, and motivation. One of the most important benefits of this model, is that it aids in the learning performance improvement, which is one of the most important aspects of good education (Akçayır and Akçayır, 2018).

In addition, the flipped model improves student satisfaction and engagement, both of which are crucial factors in educational settings (Akçayır and Akçayır, 2018). This classroom focused on the quality of flipped course tools and materials, particularly video-recorded lectures, and claimed that these resources should be carefully prepared to increase student participation and pleasure. To achieve more effective involvement, Akçayır and Akçayır (2018) determined that video length should be chosen to fit the students' attention time.

These classrooms also have the unique characteristic of being able to educate parents alongside their children. Parents can watch the video lectures, thereby connecting them more closely to their child's education (Drake et. al., 2016). The flipped classroom shifts students from a teacher-centered learning environment to one in which instructors serve as facilitators and organisers. Students can engage in interactive learning during class if they possess a foundational understanding of the subject matter (Shahani et. al., 2020).

2.6.2 Educational Technology in Malaysia (E-learning Platforms)

Online learning platform is a space or portal filled with educational content and/or live instruction on a particular subject or many different topics. Such platforms also referred to as "e-learning" are typically membership-based, but there are other options where users can jump in and learn immediately without registering. E-Learning can be defined as the vast array of applications and processes that utilise available electronic media and tools to provide vocational education and training (Alqahtani and Rajkhan, 2020).

1. **Google Classroom**

Google Classroom is a new tool that was released in Google Apps for Education in 2014, and it provides a platform for blended learning in schools, making it easier to create assignments and provide grades to students without using paper (Sukmawati and Nensia, 2019). This classroom allows teachers to easily create and manage assignments,

provide timely feedback, and communicate with their students (Sukmawati and Nensia, 2019). Google Classroom can be defined as a tool that facilitates cooperation between teachers and students. This tool can make students more engaged in the classroom as they share assignments and make announcements (Tarteer et. al., 2022).

Google Classroom is a web-based tool that allows teachers to manage the creation and collection of student assignments in a paperless setting with Google Docs, Drive, and other Google Apps (Shampa Iftakhar, 2016). Google Classroom enables teachers to spend more time with their kids and less time on paperwork, and it has just been improved (Shampa Iftakhar, 2016). Google Classroom has gained new features as a result of Google's latest announcement.

According to Fitriningtiyas et. al. (2018), Google Classroom is a free web-based platform that is widely used in higher education as a class management tool. Intan Syahidah Zulkafa and Zuraina Ali, (2020) list down several features of Google Classroom. According to them, platform users can design the platform to suit their needs. Below are the features of GC that help teachers and students to manage their class digitally:

a) Because the dates of assignments are pinned to the class calendar, both teachers and students will be reminded of them.
b) Teachers and students can post and share any relevant items, such as links to other websites and YouTube videos, as part of their lesson materials.

c) Teachers can submit questions and provide students with fast feedback. Each exam can be given a grade, and students can always refer to the teacher's comments that was given before the assessment.

d) It serves as a simple technique of transmitting data to a class. Students can respond to the announcement by using the comments option.

Google Classroom is advantageous and efficient for all users. It is user-friendly, free, and saves time by integrating with other Google applications, including Google Drive (Tarteer et. al., 2021). It is a good application for both students and teachers because it is user-friendly, efficient, effective, better for the environment (paperless), and allows teachers and students to collaborate. Students and teachers can access Google Classroom anywhere using electronic devices with Internet connections.

2. Microsoft Teams

Microsoft Teams is a collaboration tool that unites chat, audio, video, and file sharing for use by local, remote, and dispersed work groups. It was launched in November 2016 as part of the Office 365 productivity suite (Sherweb, 2021).

Microsoft Teams allows for live transcription and recording (Heath et. al, 2021) Any documents, spreadsheets, presentations, and other files shared inside a Team are synchronised with a copy kept in Microsoft's OneDrive cloud storage and a local SharePoint environment, ensuring that every Team member has access to the most recent version (Heath et. al, 2021). This shared document can also be edited collaboratively, with each user's changes reflected in real time in the Office software

(Heath et. al, 2021) Meeting recaps include a meeting tape, transcript, conversation, and shared files are available.

The features of Microsoft Teams are that a whole team can see the message history, which includes rich chat with text, audio, video, and file sharing. Next, students can chat as a group or privately this platform can store all their files, docs, and more in one place. Finally, this platform also allows users to collaborate in real time on documents and digital OneNote notebooks. Here are the main features of Microsoft teams (TheDigitalBridges.com, 2018):

a) Chatting

Microsoft Teams has a virtual talking platform as its main feature. This is just Skype on a much larger scale. It has everything a contemporary talking platform should have, plus more. Not only will people be able to participate in active chat threads, but it will also allow people to have private conversations, Skype integration, customisation choices, and more.

b) Teamwork Tools

Another aspect that Microsoft Teams will offer is a range of various teamwork tools that are meant to increase overall productivity and communication within the team. Office 365 is embedded into the platform, as well as Microsoft Graph and other features. Furthermore, the platform is completely intended to function on a variety of platforms and devices. As a result, using the different capabilities will not necessitate the use of a certain platform.

c) Security

The platform's security is what people expect from Microsoft. Microsoft has a history of providing some of the safest platforms, and Microsoft Teams is no exception. People will get full data encryption and Microsoft's well-known safety of both client and user data with Microsoft Teams.

d) Customization Options

Another feature people can anticipate from Microsoft Groups is the opportunity to personalise pretty much anything. People will be able to tweak the platform in order to improve workflow. It may be tailored to fit the needs of their unique team. It can also deliver third-party alerts if people wish to completely integrate them into their platform.

3. iTunes U

iTunes U is a completely free platform where colleges and universities can offer courses to anyone who wishes to take them for no cost through the Apple iTunes programme. A new component of iTunes U focuses on K-12 education, with content from state and county education agencies for both students and educators (Matt Breed, 2010).

With iTunes U, it’s easy to create their own custom courses for iPad and teach them in their classroom. And the iTunes U app puts all the materials people create for their course syllabus, videos, apps, books, class assignments, and more in one place. Right in the app, their students can play video or audio lectures, read books, and view presentations. They can also see a list of course assignments, then check them off as

they're completed. And when people create a new post, students receive a push notification.

Anyone can create courses using iTunes U Course Manager, an easy-to-use web-based tool. To create a course, simply gather all the materials people need and follow the steps in iTunes U Course Manager. Courses can include their syllabus, handouts, assignments, and other items. People can include content from the iBooks Store and the App Store, as well as web links. And people can link to materials from over 600,000 selections available on iTunes U, including audio and video content from the world's leading education institutions. Once their course is ready, it's easy to share it with their students or publish it to their institution's iTunes U site.

2.6.3 History of Education Technology in Malaysia

2.6.3.1 Global Open Access Learning System (GOALS)

In other words, these communications via cyberspace have prominently taken over the 'old ways' of communication between sender and his or her targeted recipients by using phone calls, SMS, snail mails and e-mails, including the e-learning system (Najwa Hayaati et. al., 2014). Universiti Sains Islam Malaysia (USIM) is equipped with its own Open Educational Resources (OER), or e-learning system known as GOALS (Global Open Access Learning System). With its inception in 2011, USIM GOALS has since undergone periodic upgrading process. From uploading Course Outlines, posting notices, setting up Online Quizzes to initiating Online Forum, USIM lecturers have utilized GOALS in their teaching and learning (TnL) activities. But when it comes to

the collection and dissemination of information between two affected parties (lecturer-students), the slight drawback would be in the students' infrequent checking of their GOALS account which further result in communication breakdown (Najwa Hayaati et. al., 2014).

2.6.3.2 Massive Open Online Courses (MOOC)

Massive Open Online Courses (MOOC) is one of the most prominent instructional delivery tools for education. The emergence of new information and communication technologies has paved the way for educators to create a ground-breaking online learning environment that enhances the entire teaching and learning process (Wu et. al., 2010). MOOCs contain online courses that can be accessed through the web and offer unlimited entries. According to G. James Mozoue (2014), it presents a model for delivering online learning content to anyone who wants to attend a course, with no restriction on attendance. MOOC have gained significant attention in recent years as both an opportunity for and a threat to higher education markets worldwide (Pouezevara and Horn, 2016).

Additionally, students can participate in interactive user forums provided by MOOCs and this interactive forum helps build communities for students, lecturers, professors, teachers, and all users (Lun Haumin, 2019). Another interesting feature of MOOCs is that they do not require any official education or entrance requirements (Wan Abdul Aziz et al., 2018). Lastly, MOOC courses are generally available through computers, mobile phones, tablets, and other devices, making the learning experience

more enjoyable because students can learn whenever and wherever they choose because they are not required to be in a specific location to learn (Wan Abdul Aziz et al., 2018).

2.6.3.3 Video Conferencing Applications

Video conferencing is a live audio and video conversation between 2 or more people in different locations, conducted using phone, tablet, laptop or desktop computer (Self Help Nottingham, 2016).

Many devices have video conferencing functionality built in such as Apple's FaceTime and Google's Duo, and many popular apps also provide this service such as Instagram, WhatsApp, and Facebook (National Cyber Security Centre, 2020). There are also standalone video conferencing apps that people can download; popular titles include Zoom, Skype, Houseparty and Microsoft Teams.

a) Skype

Skype is a proprietary Voice-Over-Internet Protocol service and software application (Hargreaves and Chris, 2013). Hargreaves and Chris explained this service allows users to communicate with peers by voice, video, and instant messaging over the Internet.

It is a proprietary P2P telephone service that was first offered in 2003 by Niklas Zennström and Janus Friis, the founders of the well-known P2P file sharing system Kazaa. Microsoft owns Skype, which has around 663 million registered users,

according to reports (Wojciech Mazurczyk, Maciej Karaś and Krzysztof Szczypiorski. 2013). Phone calls may be placed to recipients on the traditional telephone networks. Calls to other users within the Skype service are free of charge, while calls to landline telephones and mobile phones are charged via a debit-based user account system (Hargreaves and Chris, 2013).

Voice-Over-Internet Protocol, also known as VoIP, is a technology that allows telephone calls to be made over computer networks like the Internet (Lo Iacono et al., 2016). They explained that it can convert analogue voice signals into digital data packets and supports real-time, two-way transmission of conversations using Internet Protocol (IP). VoIP calls can be made on the Internet using a VoIP service provider and standard computer audio systems.

b) Zoom

Zoom Meetings has exploded to become one of the top video conferencing platforms since the pandemic started. Because of its ease of use and cheap network bandwidth requirements, the video conferencing programme Zoom has grown immensely popular, resulting in the so-called Zoom booming (Mohanty and Yaqub, 2020). It's the core of online education, a convenient way to have meetings, and even a way to keep in touch with family members (Mitja Rutnik, 2021). Many people may not have a good grasp of what Zoom Meetings is and what it can do.

According to Mitja Rutnik (2021), it is a video conferencing platform from Zoom that allows employees of a firm to attend online meetings while working

remotely. The software supports HD video and audio and can accommodate up to 1,000 participants per session, depending on the plan people have.

Zoom Meetings includes all of the tools that a company, no matter how large or small, requires to have online meetings. Participants can participate from any computer or mobile device with an internet connection, anywhere in the world (Mitja Rutnik, 2021). They have the option of turning their cameras on so that others may see them or turning them off to maintain some privacy (Mitja Rutnik, 2021). Everyone can also use their microphone to give their full attention to whoever is speaking. Zoom Meeting offers loads of other useful features, some of which people can check out below. According to Mitja Rutnik (2021), the main features of Zoom Meetings are as below:

i. Record meeting: With the press of a button, people may record any meeting. A recording can be saved locally on a device or uploaded to the cloud. Employees who were unable to attend the live meeting/webinar can view it afterwards.
ii. Screen sharing: Participants can share their computers' screens with others, which is useful for presentations and instructional seminars.
iii. Chat: Every Zoom Meeting includes an integrated chat function that allows attendees to communicate and ask questions throughout the meeting.
iv. Virtual hand-raising: People can indicate to the presenter that people wish to talk or ask a question by raising their hand remotely. This improves meeting communication by prohibiting numerous persons from speaking at the same time.

v. Polls: To gather replies and thoughts on a certain topic, a host can build a poll and share it with meeting attendees. This is useful for voting on a variety of business choices, for example.

vi. Mute participants: The meeting host has the ability to silence any participant's microphone. When someone forgets they have the mic and their children are crying in the background, for example, this is a critical feature.

c) WebEx

WebEx was founded by Subra Iyar and Min Zhu in 1995. Former Zoom President Dave Berman also served as WebEx's President of Worldwide Sales and Services, even assisting in the company's initial public offering. Eric Yuan, the founder of the multibillion-dollar company Zoom, began his career as an engineer at WebEx before launching his multibillion-dollar company. The company's success and influence should come as no surprise, given the presence of so many superstar employees. WebEx was acquired by Cisco 12 years after its founding for $3.2 billion, despite having only $380 million in sales, in what was widely viewed as a strategic move against Microsoft and an attempt to compete with SharePoint (Yonatan, 2021).

Because it looks like WebEx Meetings, the online audio and video conferencing system, WebEx is more than just a video conferencing platform; it's a suite of tools and services supplied by Cisco that also include WebEx Teams, a messaging, file sharing, and whiteboarding collaboration tool (Dave Johnson, 2020). Dave also explained that WebEx Events, a virtual event hosting service, WebEx Calling, a Voice Over IP technology that allows voice calling on any device, and a variety of additional products

such as WebEx Training, WebEx Support, and WebEx Contact Centre are all supported by the firm.

Gabriela Warren (2019) cites the following advantages and disadvantages of WebEx:

i. Pros:
   1. WebEx features a straightforward user interface, albeit it is not as intuitive as GoToMeeting's.
   2. Users can effortlessly share their desktops, as well as any documents or applications they have installed on their computers.
   3. Changing presenters, creating whiteboards, and passing keyboard and mouse control is simple and quick, resulting in a seamless meeting experience.

ii. Cons: WebEx uses Internet Explorer as its default browser; if you prefer Firefox or Chrome, you'll need to alter your browser settings before clicking on a link provided through the application.

Gabriela explained that WebEx costs $49 per month for unlimited meetings with up to 25 people per meeting (at the time of writing). This is equivalent to GoToMeeting, which permits up to 15 guests per meeting for the same price. Users can also choose to pay per use. Below are the WebEx's Key Features (Uchendu, 2021):

i. WebEx contains virtual whiteboards for all users participating in a conference to utilise for illustrations and commentary. Users can even write on the whiteboard, making virtual meetings more engaging.

ii. Meetings can be translated into about 100 different languages for participants who don't speak the language used in the meeting.

iii. During the virtual meeting, the host has the opportunity to mute all other participants.

iv. Background noise reduction: WebEx has a background noise reduction feature that reduces noise from your surroundings and ensures that it does not disrupt virtual meetings.

v. Camera optimization: Autofocus, auto white balance, contrast, sharpness, manual anti-flicker, and occupancy detection are among the webcam settings options.

vi. Integration with third-party services: WebEx works smoothly with Zoom, Slack, Microsoft Teams, and a variety of other applications.

2.7 Conclusion

The objective of this review already find out public teaching, the integration of INAQ and pure science and the role of technology as a medium for students to interact in the integration through the public teaching. That is why the A4STEM has become combination of STEM with Arabic language and see how the evolution of learning process begins and continued transformed and still transforming. It's clear from the research reviewed that language learning is widely practiced all through online or

physical class in universities today. Together with this, it's also an evident that the field of learning pure science (STEM) with Arabic language in regards to the kinds of learning media that students used is varied and continues to be examined and analysed to benefit students and the society at large. Assisting students to become young Muslim scholars is important in our current society with this module."